

Logic Transition Theory - metaphysics of the reality

Everything in the Universe is a logical consequence of the previous rational premise(s). If we extrapolate all events backwards, using computer simulation or mathematical calculation, galaxies would get closer and closer, matter would compress more and more until entire spacetime clinch into the initial singularity of infinite density and energy. Let us extrapolate one further step: what are the rational premises for the initial singularity?

Two phenomenons that reside solely in the domain of the metaphysics: Great Nothing and Time. Their nature is transcendent, preoriginating creation of the Universe, therefore it is not perspective subject contemplative from the physical standpoint. Nothing and Time need no prior causes for existence. What is nothing? Nothing is real. Remember intergalactic vacuum? What is 99.9% of the cubic meter? Nothing. What is time? Time is measure of the Earth's angular momentum. We have divided Earth's rotation cycle into the 24 hours and produced time scale. We use movement of our planet to describe time. But before the Big Bang there was no Earth, no planet, no matter, no space. We have nothing to compare time with. Nothing to use as a calibrator.

Does that mean that there is no Time? No. It means that we have nothing to measure time against. There is nothing and nothing is happening. Time is factor of the velocity. No velocity = no time. No time equals eternity. Imagine you have a stopwatch with no units noted. How long will you wait until any amount of time passes, even infinitesimally small? Infinity because there is no time to pass. Only when Time started to be realised, at the moment of initial singularity when first event in the Universe happened. Nothing has existed for an eternity and it jumped into the next logical phase: 0 became 1 or, better yet, +1 and -1. We know when it was from now but if we look from the initial singularity moment into the past we can not see the beginning. How can we see anything which has no beginning? It is like looking into the sky - can you see the edge of the Universe? Take best telescopes - do you see the edge of the Universe? Even if you do - that edge is not an edge when you look again due to the expansion of the spacetime.

Think of it as the Heisenberg principle on the macroscale: you can not measure exact position and velocity of the cosmic border at the same moment.

Nothing is deep. Nothing is eternal. You can not see its bottom - you can not see how old it is. Hence, it is eternal in the past direction. We can place initial singularity 13.8 billions years ago observing from now. Observing retrospectively from back then we can not place it anywhere or anytime because we have no previous reference. Nothing was nowhere and never. Being nowhere and never actually it was everywhere and eternal. It is a paradox. That is why I say it is solely the domain of transcendence or metaphysics: "Unseen roots of no prior necessary logical cause". On the vector of eternity the moment of initial singularity is undefinable and irrelevant. You can not precisely determine the infinity and eternity. We use symbol "8", in horizontal alignment, to express such quantity. And minus sign in this case.

Hence, Universe needs no creator. Universe could exist by mere logic of phase transition from 0, which lasted for an eternity, to 1 splitting into the two opposite particles of matter and anti-matter.

What is nothing?

What are the characteristics of nothing? We certainly can not come to the nothing from somewhere simply because there is no somewhere - there is only nothing. Nothing has no matter, no forces, no properties. Try to close your eyes hard so that no light enters them, cover your ears tight so that no sound passes, exhale and stop breathing for a moment, forget about your body and relax, stop thinking. That is what nothing looks like. Exactly: nothing. But Nothing has potential. Nothing has ability to make something appear. Particles and antiparticles emerge, annihilate between pair and disappear.

We ask ourselves the wrong questions because we act accordingly to the 2nd thermodynamic law of entropy. In order to find solution we must reverse our thinking. We must reversely engineer the Universe. Same as "how" Universe began instead of "when" it began, we always ask "can something come out of nothing" instead "can nothing come out of something". Yes it can. Particles and antiparticles cancel each other - something creates nothing. Isn't the backward method logical? If I enter the room then I can certainly get out the same way. If something goes off then it can go on as well. 1 and -1 summed equals 0. Isn't it logical that 0 equals summ of 1 and -1?

More about nothing

As well as there is only three possibilities for Time to exist: 1) it was forever, 2) it started at some point of never or 3) it is an illusion, Universe could have: 1) existed forever but only time without space before the Big Bang - conditional nothing or nothing with time factor included, 2) started at some point in never or 3) it is an illusion. We live beings feel the Universe is because we are entirely susceptible to its laws. One can not discard his deepest insights. But in order to think like God - we must transcend our thoughts beyond borders of the spacetime and contemplate in the divine (spiritual) sense. For God - Universe is and isn't at the same time. It is the only way to purely, objectively, rationally observe the Creation. Remember, one can not see the box from inside the box. One can only see the inside of the box. To observe the box we must get out. To do so we have to achieve the speed of light. Only massless photons can do so. What is spirit if not massless? Only by transcending our minds into the astral regions we can accomplish the great exit. Or creating ripples using ultra power lasers concentrating critical amounts of energy into the single point of the spacetime?

There are only 3 possibilities for Time to exist: first, it existed forever. This sounds interesting, even logical.

Second, it started at some point. But in what point? In the point of nothing? Or there were already primordial energy(ies) that turned into mass (matter) and certain forces?

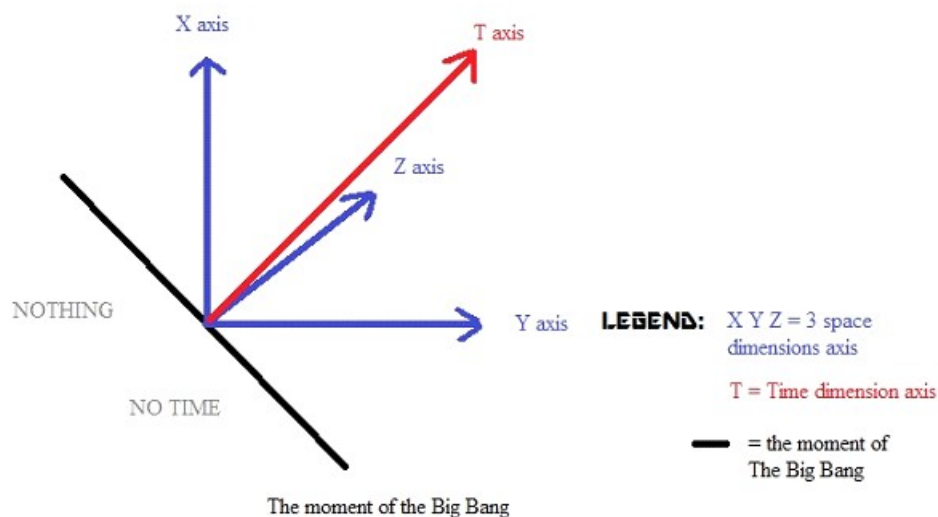
Third, Time does not exist. It is simply man made concept to measure duration of events. Event can be either motion or transformation (including decay, improvement, change) or any combination. Event is not strictly physical. It has duration property. It started at some moment in no-time which can be whenever or never, the first quantum fluctuation in the Universe: 1 or 0, and it will end sometime or it will last to eternity. I recognize periods which are interwoven and create an active fiber of the Time illusion phenomenon/paradox that do not really -is- but rather -is virtual-. For example, computer representation do not exist. It is virtual. There are only physical energies or masses and forces that govern them. Accordingly, there is no true reality. There is only visual reality.

Second possibility seems just like the hot Big Bang Friedmann model of the initial Cosmos. At some moment in the higher Time dimension smaller fragment branched. Same problem arise: when did this higher Time dimension began? Identical situation occurs again and again if we try to offer same solution. We keep extending the circle of the subject. In order to answer the question it is obligatory to observe the question from outside. You do not know for sure how you look without a mirror to reflect your image respectively. So, the truth is not round. The truth is in string form. Just lenght and you can supervise it from any point nearby. Maybe now issue "how" Time started is proper to ask. Along with source singularity, anytime or never (remember that there is no time - if there is no time than something can only began at 0 Time. What is 0 Time if nothing: described numerically and simbolically as 0 in both aspects), through starting phases (infinitely dense, then ultra hot, then introducing laws of physics and expanding and cooling the matter in the spacetime, then balancing inside and continually spreading in all directions, light speed fast, through the conditional nothing. Notice the way I name absolute absence of anything: conditional nothing. Another version of the first quantum fluctuation ever: nothing with asterix (´). We can religiously and philosophically call it God or the Grand Sculptor. I prefer sculptor over architect. Architect means pure

theory or visual translation, graphical manifestation of the authentic idea in contrast to the sculptor which means both theory and praxis or visualisation and process of making together, respectively. "In beginning there was the Word". Holy scriptures were written in ancient languages, more or less partially lost and hard to comprehend with 100% certainty, so what if instead of the Word there should be the Thought? In beginning there was the Thought. And Thought was the God. God which can cloak Himself if desired. In our ignorant attempts to name and define the cause of Being we humans think of eternity and nothing terms? Yet we can not understand Universe and astronomical proportions of it. All we got so far are theories. Convincing or less. When we succeed to explain our human mind than we can go step more. We still do not know ourselves, except enlightened ones, hermits, but we reach towards intellectual heavens. Do you really believe that you can even step on the path of wisdom without knowing your inner self? Hello. Who are you? It is me, I. Nice to meet you I. I think the same. Hello and bye you at the same time as I. :-) Fun game of words to relax our mind.

NO-NO paradox:

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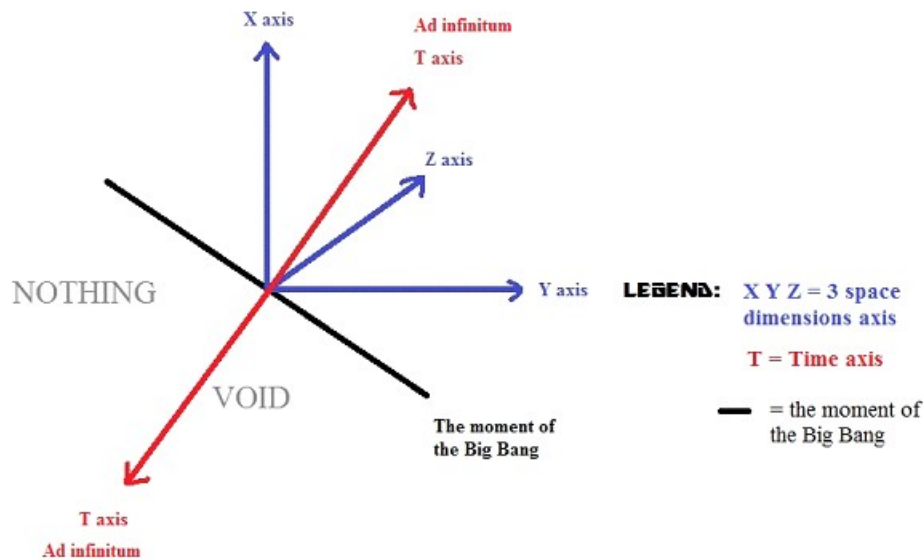
If Universe (including Time) started at a certain point, which scientist call Big Bang, what existed before that? Lack of anything material, absence of everything, nothing is easy to grasp. It is easier to ask ourself and contemplate how and when Time alone started to exist rather than how and when space and time together started to exist in the form of the Universe. On the other hand it is much easier to understand lack of space than lack of time due to the visual representation of the matter in contrast to the invisible nature of the Time. I can imagine nothing spatial existing before Big Bang but I can not imagine nothing temporal existing before Time. That is a paradox any way we look at it: if any amount of Time existed before Big Bang then we can not say that Time started with the Big Bang. But if Time started to exist with the Big Bang then nothing - lasted no time prior? Nothing is so unstable that it lasted for 0 seconds? I have a parallel: when I try to rest my mind while being awake I can hardly suppress thoughts and sustain the phase of not thinking for a longer than few minutes - sooner or later my concentration falls and some thought manages to squeeze out of my neurons and manifest itself... We have nothing spatial which lasted for no time and then was the Big Bang? Nothing simply wants to become something as faster as it can and now is the best time to do it? Nothing was nothing for no time and then it decided to explode and expand? I have trouble accepting the idea that Time started to exist with the Big Bang. It has no logic - it is a paradox any way around: if any amount of Time existed before then Time didn't start with the Big Bang. If Time started with the Big Bang then nothing existed for no time prior? It is Universe or nothing!? Or better said, nothing for no time. This „at the point“ concept is hard for me to appreciate without the instability factor accompanying zilch. Do I see primordial quantum state here: first 0/1 occurrence ever? 0 is so unstable that it was 0 for 0 time and immediatelly turned into 1 and expanded further? It actually proposes that quantum instability is fundamental principal of the Nature. Quantum instability or... (inter)change. I must notice similarity with the Yin-Yang philosophy or dual nature of the Universe: Yin turning into Yang and vice versa; 0 and 1 alternating repeatedly. Does it mean that one day 1 will become 0 again? Maybe when it stretches to a maximal degree, maybe not. Maybe only 0 has instability factor included. Maybe 1 is firm. However, „at the point“ theory indicates that Universe, spacetime, started - what a selfish idea.

Humans are the most selfish beings that ever existed – first they said that everything rotates around them (Earth). Then they say that everything started with them (the Big Bang). Why should everything started with the Big Bang? Big Bang could have been just one event in the everlasting continuum. I imagine reality before the Big Bang but not our kind of reality, instead hypertime and hyperspace forming hyperreality – time, space and reality without boundaries and limits. I imagine massive Sun, bigger than our galaxy, gigantic black holes and I imagine huge dark energy area creating cosmic thunders – electrical discharges that occasionally hit surrounding emptiness causing big bang to occur on the opposite side of conditional nothing or in the parallel reality. In that case, quantum state is fundamental but only as a consequence of the randomness of the cosmical electrical discharges, not as a self-induced or field-induced alternation. While conditionality of nothing arises from the fact that there are forces prior to the Big Bang. Being in the box (Universe) we simply can not see what existed before the moment of the Creation but we selfishly consider it to be the start and the end – and, moreover, having the meaning and the purpose. We should accept the possibility that our Universe is only a consequence of the higher cosmic incident – for example, random strike of the electrical discharge. Perhaps there are layers of reality in which our Universe is just the one inbetween or even among the lowest ones.

The most interesting question is: if there was nothing and no time before the Big Bang then exactly where and when could that Big Bang happened? This is paradox by itself.

Ad infinitum logic:

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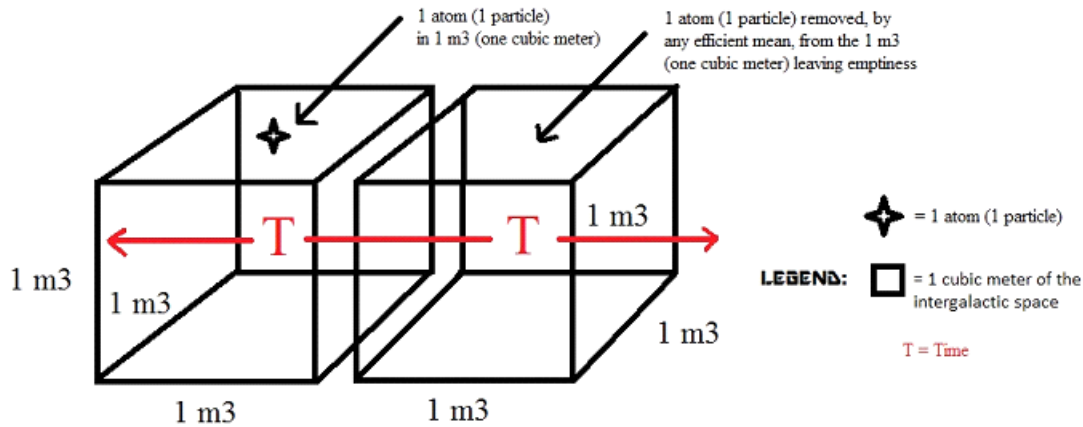


How could nothing lasted for an eternity since there is a point when and where The Big Band happened? Because in order to have eternity you don't need to have infinite line in both directions - you only need infinity in one direction which is past in our case. Time line can stretch indefinitely in the past having one side fixed at the moment of the Big Bang.

As well as empty space gives meaning to the cup in the same manner empty space gives meaning to the Universe. Likewise our houses have yards that separate private from public making a barrier. Try living without a yard, road, field or green surface. Try living without an intermediate zone between you and the surroundings. Emptiness in the Universe has actual purpose of the separation.

Nothing is real:

Nothing is real:



To get the perspective how nothing looks like we can go on a space trip starting from the Earth where air has density of 10^{19} particles in the 1 cm³, then cross into the interplanetary space where density is 5 particles in the 1 cm³, further into the interstellar space with 1 – 0.1 particle in the 1 cm³ and finally we arrive in the intergalactic space where density is only 1 particle per one cubic meter. If we, by any efficient mean, remove or neutralize that particle (cooling with lasers) then we have 1 m³ of nothing – nothing with volume of 1 m³ and Time exist regardless of the matter deficiency.

Stages in the density of the Universe (interplanetary/interstellar/intergalactic) offer insight into gradual transition from something to nothing and reverse. Particles in interplanetary space have a density of approximately 5 particles per cubic centimeter. The air we breathe has a density of approximately 10^{19} molecules per cubic centimeter. Average density of interstellar space is about 1 atom per cubic centimeter and the lowest density regions of interstellar space contains approximately 0.1 atoms per cubic centimeter. Intergalactic density is less than one atom per cubic meter.

Earth atmosphere Interplanetary Interstellar Intergalactic Density 10^{19}
 $5/\text{cm}^3$ $1/\text{cm}^3$ - $0.1/\text{cm}^3$ $1/\text{m}^3$.

Therefore, Time doesn't need any condition or circumstance to exist.

Of course, things aren't that simple: intergalactic emptiness, cosmic vacuum, actually is not nothing although it visually appears like that on the first sight. There are electromagnetic radiation, magnetic fields, dust and cosmic rays. Our imagination should go further beyond just removing a single atom. We must neutralize the prementioned and then we still do not have nothing because there is one remnant left - vacuum or zero-point energy. So, there is plenty of work to make nothing out of nothing but I think you get the picture how it looks like.

Graviton and Darkino - tailors of the spacetime

Speed of the light C ($299.792.458 \text{ m/s}$) is the fastest "reachable" velocity in the Cosmos. True? Ok and nothing can travel faster than it. We know that.

But... Imagine sprinter running 100m in 10 seconds flat. What if we compress the distance into 50m keeping his speed the same? He will cross it in half time or 5 seconds flat. After he passes the last meter then we elongate 50m back into the initial length of 100m. Do you realize what we have achieved? We have achieved running 100m in 5 seconds. The speed has doubled artificially because the length was halved by manipulation of the spacetime.

Yes. Good. It makes sense. But how can we compress the spacetime continuum?

Scientists have, for some time, considered the existence of the particle called Darkino which influence the fabric of the Universe in such manner that it becomes larger. This is somewhat explained in the field(s) theory. Each new created particle instructs the field to add one more cell, basic spacetime brick, into the Construct. Perhaps the particle becomes the cell? What if we create anti particle or anti-Darkino? Could it contra behave? Can it reverse the enlargement process? Then we throw sufficient amount in front of the space ship traveling at certain speed forcing it to artificially increase his velocity even significantly beyond the declared limit or C .

I can take as much without using calculus and known facts.

Is it possible to produce the anti-darkino? Well, we already know for the existence of positron or anti-electron, theoretically since Paul Dirac's paper in 1928. and experimentally since Carl David Anderson discovery in 1932. for which he received Nobel Prize 4 years later, and for the existence of other anti-matter particles, like anti-quarks, as counterparts of their "normal" relatives - detected with huge particle accelerators.

Moreover, we realize that Beta decay, radioactive process where beta particle is emitted from an atom nucleus transforming it into its isobar form, produces positrons together with neutrinos. Last-mentioned have their counterparts in anti-neutrinos. Also we realize that anti-protons exist in Van Allen Belts. It is the zone where energetic charged particles, mostly originating from the solar winds, are contained by planet's magnetosphere. Earth has constant two with possible others but temporarily created. This zones occupy atmospheric heights ranging from 600 to 60.000 kilometers above the surface. It is easy to imagine what could happen if those anti-matter particles aren't held by Earth's magnetosphere and reach the ground - there is a fair chance that things down here would be annihilated in a bright flash. Feynman even proposed that positrons could be electrons traveling back in time. We would meet our past - figurally speaking. Before we blast dispersing into the cosmic obscurity without any trace. Sorry, there would be a specific trace left in the form of the microwave emission like in the case of the early Universe. If you can call it a trace since there would be

practically nothing material to deal with except some energy and waves as mentioned a moment ago.

Earth`s burned surface on the west coast of both Americas, practically whole Australia and entire region from Northern Africa, across Middle East and to the Mongolia could be the consequence of cosmic rays and anti-matter past intrusions originating as the strong solar flares or even beyond the system. How does the Earth`s core behave? How long will it last keeping our shield working? Mars doesn`t have strong magnetic field nor the moon and look at their life lacking vastelands. Is this our destiny? Surely, if (when) Earth`s magnetic field cease to exist.

Do you know what is the biggest particle accelerator and collider ever created? No, it is not the LHC. It is the Universe itself where cosmic rays collisions occur naturally even as we speak.

Observable Universe is composed mostly out of the ordinary matter posing one of the most important unsolved questions in (astro)physics described by the baryogenesis riddle.

Sir Franz Arthur Friedrich Schuster revealed the term "anti-matter" in two letters sent to the Nature in 1898. Although his work was mere speculative no one can deprive him of the merit that he was the first who introduced this concept. His idea was confirmed in 1955. and 1956. when anti-proton and anti-neutron were experimentally detected by University of Berkeley and Bevatron Laboratory.

There were many other reports and findings regarding anti-matter during the last 50 years period since Schuster`s suggestion but I will skip to the modern time when we have the largest hadron collider ever built at our disposal - called exactly the Large Hadron Collider or LHC, abb., one of the practical parts of the CERN - the European Organization for Nuclear Research. In 2011. scientists in LHC succeeded to capture antihydrogen

atoms for 1000 seconds and study 300 of them, mapping precisely with laser or microwave spectroscopy, comparing to the hydrogen lines and investigating CPT symmetry (charge/parity/time).

<https://press.cern/news/press-release/cern/cern-experiment-traps-antimatter-atoms-1000-seconds>

Another interesting discovery was observed in 2014. when G2 cloud of gas passed intact at 260 AU distance from the Sagittarius A - object, located in the center of the Milky Way, thought to be supermassive black hole. Could it be bundle of the dark matter instead? One theory for its identity suggests that dark matter is comprised of an exotic particles called "darkinos" which belong to the fermion class, meaning that they obey Fermi-Dirac statistic or, in other words, they can not collectively occupy the exact position in the field like bosons can, but do not interact with light part of the EM spectrum making them invisible to the human eye and any device using same 400-700nm range for observation.

Fritz Zwicky introduced the term dark matter ("dunkle Materie") in 1933.

What is my contemplation about this subject? Anti-matter could be contained by the primordial black holes lurking somewhere very far in the cosmic depths, or it could be pushed away at the edges of the Cosmos and beyond by dark energy, or - it could be diversified, (re)combined, shuffled, embedded, perturbed and, finally, neutralised with fundamental physical laws and adequate surroundings that perfectly facilitate its, otherwise, wild content. Like holding devastating nuclear power confined inside the strong magnetic area (TOKAMAK).

Or solution could lie in the existence of gravitons: another exotic particle, like darkino, yet responsible for producing gravitational effect, although it is just theoretically postulated, and if applied in sufficient amount even creating the most extreme spacetime anomaly called "singularity". Two of

these connected would form a wormhole or Einstein-Rosen bridge that serves as quantum link between two distinct, entangled points in the tissue of the Universe enabling "zero delay" communications and instant traveling. Ask Chinese for prior because so far they seem to went furthest along this path actually, recently, achieving quantum video link between Beijing and Vienna - 7.400km apart.

Scientists have calculated how much dark energy and dark matter Universe has: 68% and 27%. The rest 5% is ordinary matter.

It was Albert Einstein, back in 1917., who noticed that intergalactic space is not empty introducing his famous cosmological constant, denoted with greek letter Lambda Λ , attributed to the misterious force which is, supposedly, responsible for the expansion of the Cosmos but his intervention was of technical nature and not supported by actual findings. Years later, Einstein abandoned his idea which was replaced by Hubble`s one due to his discovery that Universe is expanding. Moreover, he discovered that the expansion is accelerating the more distant the galaxies are from us. In 2009. Planck satellite was launched on the mission to detect CMBR as never before, map anisotropies and precisely determine the exact distributed amounts of each of the three components, respectively. Hence, new values have been established for the Hubble`s constant = 67.15 ± 1.2 km/sec/mps, dark energy = 68.3%, dark matter = 26.8% and ordinary matter = 4.9%.

Quantum gravity theory proposes existence of the graviton - massless, spin 2 particle. Doesn`t darkino appear correctly opposite - at least with the respect to the effect it produces? This two hypothetical particles, graviton and darkino, could be accountable for the contraction (gravitation) and the stretching (expansion) of the Universe. Maybe it is the same particle but with different, inverse property(ies)? In such case, I suggest that we call it "phantomino". Switch in its charge could trigger the contrasted behaviour. This final duality would perfectly encircle the standard model of the particle physics to 32 pieces total - or 12 (quarks and anti-quarks) + 12 (leptons and anti-leptons) "chunks", 5 gauge or vector bosons (gluon, photon, Z0, W+,

W-), 1 known scalar boson (Higgs) and two hypothesized scalar bosons (graviton, darkino) - just like chess set have. Maybe, God was playing the popular board game when creating the Universe?

What about naming the most fundamental cell of the reality: "nihilino" where +1 and -1 co-exist in the perfect harmony purely as could-be-expressed potential of the zero or nihilo value virtually equaling pre-mentioned or, in expert terms, residing in the superposition of both - simultaneously. I already sent my Logical Transition theory, to the Archive, in which I offered the alternative explanation how Universe could began Ex Nihilo and this section could be a little add-on.

Why we can not see the early Universe but only its cosmic micro-wave background radiation (range of spectrum between infra-red and radio) discovered by Penzias and Wilson who in 1978. received their Nobel prize for it? Because it was too hot and dense which made electrons fuzzy, running away from protons, and unable to interact with photons. When Universe cooled enough, through expansion, then visible matter appeared but roughly just around 5%. Does dark matter have defect electrons as the direct consequence of the early Universe radical circumstances?

Well, whatever the real truth is I do not see an alternative, equally plausible explanation at this very moment. Please inform me if you have better solution - in which I sincerely and utmostly doubt.

Baryogenesis riddle solved - anti-matter is real

baryon: particle + genesis: formation =

baryogenesis: formation of the particles

Can you imagine nothing? No objects, no galaxies, no dust, no cosmic rays,

no vacuum energy, no space, no time: no Universe. Absolutely nothing.

Now think, can nothing have any property/ies since it is nothing? What could property/ies of nothing be? If there is any at all?

Does nothing have borders? How can you margine nothing? Therefore, it has infinite volume to begin with. Like limitless canvas to paint on. This immediately implies two instances of nothing: property (volume) and value (infinite).

What about the age of nothing? How old is it? Remember that there is no Time because the Universe hasn't formed yet. Does "No Time" mean zero (0) Time? How long will you wait until smallest amount of time pass if there is no time? You will wait for an eternity. Hence, nothing has the age (property) and value (eternal).

Already we have two properties (volume and age) and their two attributed values (infinite and eternal). I give nothing the capital letter "N": Nothing - to distinct it from the ordinary term which is used in an everyday life for the common purposes such as when saying "nothing happened" or "there is nothing in the box".

What happens next? What happens after Nothing exists for an eternity? Can anything last longer than eternity? It can't or it was not really an eternity. So, by mere logic, Nothing transforms into the initial singularity or first quantum fluctuation separating Nothing into the two opposites: zero into the plus one and minus one or, numerically, $0 = +1 -1$. Here we have very interesting relation with the Zoroastrianism (founder: Zoroaster) and Taoism (founder: Lao Tzu), occuring nearly at the same time (both respective founders lived in the 6th century BCE): while Zoroaster spoke of the cosmic duality, in the form of two opposing forces - the Good (Ahura Mazda) and Evil (Angra Mainyu), Lao Tzu revealed that Tao gave birth to the One which produced two (allegedly named Yin and Yang subsequently).

Schuster is credited for the first use of the term "anti-matter" but it seems that Zoroaster and Lao Ttzu were actually the first ones talking about it - not in the exact words although - some 2500 years earlier. Remarkable indeed.

Now we have two possibilities: pure logic - no special being needed or the God who rested for an eternity and decided to create the Universe. I even added two more in my philosophy: higher specie and computer simulation.

The process repeated, bit by bit, evolving accordingly with the each step in respect to the quantity and diversity. Science named that process inflation and it happened in such a short period of time, 10^{-43} second called the Planck Epoch, which was one of the crucial factors needed to stabilize the system or, in other words, to preserve a certain amount of the matter intact and a certain amount partially intact (dark matter). The rest 70% went hello and goodbye!

Why was the evolvment, or the improvement, necessary? Because we had two perfectly contrasting elements which joined together canceled each other, annihilated mutually. If you do not efficiently separate them you will soon have Nothing again.

How did the opposites pulled through without total havoc taking place? Experimentally confirmed, anti-matter exists in the small quantites observed. Where is all the rest?

This operations came to my mind by common sense:

diversification (quarks and anti-quarks, leptons and anti-leptons)

modification (charge, parity, spin)

coupling / decoupling

shuffling or perturbation

recombination

introduction of the physical forces (mediated through the bosons)

expansion (separation)

Diversified, modified, coupled / decoupled, shuffled (perturbated), recombined and subdued to the physical forces, or in one word: neutralised, and then separated, expanded, by the vastness of the intergalactic vacuum just to be certain contrasts are far apart. Our own anti-matter copy is fragmented and distributed between many different galaxies with millions or even billions of light years breach from the each piece respectively.

Or black holes could be the reservoirs of the anti-matter, at least that supermassive ones. Think, if the matter exists above the Higgs field isn't it logical then for the anti-matter to fall beneath? Since it has the negative mass. Why do sudden energy releases occur - along the axis of the rotation as I assume? Perhaps some matter was trapped by the black hole's gravity pull, annihilated in the middle, with the anti-matter, creating huge blast wave that had to come out.

Maybe, the anti-matter is pushed on the edge of the Cosmos, by the dark energy which is actually the remnant of the primordial cancellation, riding the border like a cowboy and that way maintaining the necessary split distance among itself and its counterpart.

Discoveries of the positron (1932.), anti-proton (1955.), anti-neutron (1956.), creating and trapping the antihydrogen atoms (positively charged positron orbiting a negatively charged antiproton) in CERN (2011.), Deep Underground Neutrino Experiment (DUNE), still unconfirmed theoretic predictions and the rest of the efforts made by different laboratories around the world encourage the theory that anti-matter is real and lurking

somewhere, probably, in the cosmic depths. Or it is right here and now, in us and around us, embedded and tamed to serve us instead of destroying us.

Only other solution is that the Universe has started out of the matter solely. Then where did that matter come from? I see no third possibility: it either came from an equal amounts of the matter and anti-matter or it came from the matter solely but in that case we haven't actually explained the formation of the matter to begin with.

Each particle of the matter has a mass and a charge (either positive, negative or neutral). Antimatter particles look almost like their counterparts: they have the same mass but opposite charge.

What about the neutrino - the most abundant particle in the Universe and fundamental meaning it isn't made of the smaller pieces? Neutrinos have neutral charge. Does it mean that neutrinos don't have their antiversions? It seems so but scientists aren't sure yet. Neutrino is a product of the radioactive decay but it also comes from many other sources like the nuclear fusion and as a result of the super novae (star explosion). Neutrinos are also incredibly small and light. They have tiny mass traveling near the speed of the light. They are the lightest of all of the subatomic particles that have mass. Their mass is so small that it can not be measured with current technology. They are extremely hard to detect: most neutrinos will pass through the Earth without any interaction! Although Wolfgang Pauli first spoke about particle with properties like neutrino Enrico Fermi was the one who first officially used that term. There are three types of the neutrino: Tau, Muon and Electron. The very interesting thing is that neutrinos oscillate between three modes rather than stick to just one. Funny bunch! Always smiling and cheering people up! Not like those lurky black holes. Perhaps neutrinos pass through the black hole as well. Can we do the spectrometry of the black hole using the neutrino-based scanner?

The U.S. Department of Energy's Fermilab is the host laboratory while

DUNE consists of the massive neutrino detectors, at Fermilab in Illinois and Sanford Underground Research Facility in South Dakota.

There is a hypothesized particle called axion but its characteristics (neutral charge, very low mass, weakly interacting with the ordinary matter) look very much like those of the neutrinos.

Until my theories about the baryogenesis riddle are experimentally proven, making me eligible to receive the adequate prize in the field of the particle physics, I will patiently proceed with my scientific work.

Dare to think - in a world full of devotees

On the West, masses gather on the squares and in the churches, on the East, crowds gather on the stadiums and in the mosques cheering, chanting and praying. Stink of sweat and loud noise is all around - not the ambient I personally prefer when addressing to the Supreme Being. It looks like God is attached to the specific locations instead ubiquitous. Not me - I pray anywhere: mostly through my scientific work.

Man has always needed the God. While fleeing from prehistoric beasts, he knelt down for the first time and prayed. He didn't know who he was praying to, he didn't know how to pray, he just, exhausted and scared, got down on his knees and instinctively! folded his hands in front of his chest, crying out: salve, Dei. It was some inarticulate speech, not Latin of course, more murmuring than a clear expression, because back then there were no languages or literacy. Just a few rough, raw, primitive, elementary verbal instructions such as "hungry, thirsty, sleep, go, hunt, danger" and scribbles around the walls of the caves.

Something distracted the monster's attraction and it turned away or the man saw a deep, tight hollow that gave him shelter, a safe haven from

gaping jaws and sharp claws, protection from imminent death, necessary salvation.

Thus, danger and fear were the two basic reasons for introducing the concept of a Supreme Being who can deliver us if we kneel and pray to it. Later, with the development of cultures and civilizations, people expanded religious oeuvre and began to praise the Lord on all possible occasions, for example: in gratitude for the rich crop, at weddings, births, feasts. Fantastic stories of resurrections, visions and various miracles have been tailored, ceremonial rites have been introduced and a class of those who do not have to work has been created because they are engaged in the study of the heavenly (theologians) or the management of the religious processions and property (priests, gurus, caliphs) which is, as a rule, of generous volume including real estates, stocks, full bank accounts, art pieces, precious metals in all forms - from jewelry to bars, relics and apocrypha of inestimable value. Most important of all, they have become masters of human souls of those who gave them command over their own mind, of those who gave up their intellect in favor of, supposedly, the more cognitively capable. It is disgusting to watch how representatives of the secular state, lacking personal integrity, conform to the clergy. It is indescribably repulsive to listen a lectures by, so-called, religious teachers, regardless of their respective denomination, if that lectures do not have sound, well founded basis in the science.

While the "cognitively capable" spoke of the "Earth and Heaven", pioneering astronomers (Galilei, Huygens, Newton) used telescopes to discover the enormity of the space. While the "cognitively capable" were devising the creation story, physicists were coming upon, until then, esoteric details about the micro-cosmos so that today we know what the nature of the reality is: spacetime, 6 quarks / 6 leptons / 5+1 bosons, anti-matter, physical forces, quanta, Planck sizes, fields, EM spectrum, process of the formation of the chemical elements, extrapolation to the singularity, etc. What it looks like and how visible is the Universe: isotropic, homogeneous, flat, Λ CDM, expanding, 13.8 billion years old, 42 billion light-years in diameter, distances to the Sun 150 million km or 1 AU and Proxima Centauri 4.2 LY, Andromeda 2.5 million LY, etc.), the ratio of

energy and matter distribution (68% dark energy, 27% dark matter and 5% ordinary matter), what is quantum mechanics and how much influence it has on further scientific and technological development.

1 AU = 150.000.000 km

1 LY = 63.241 AU

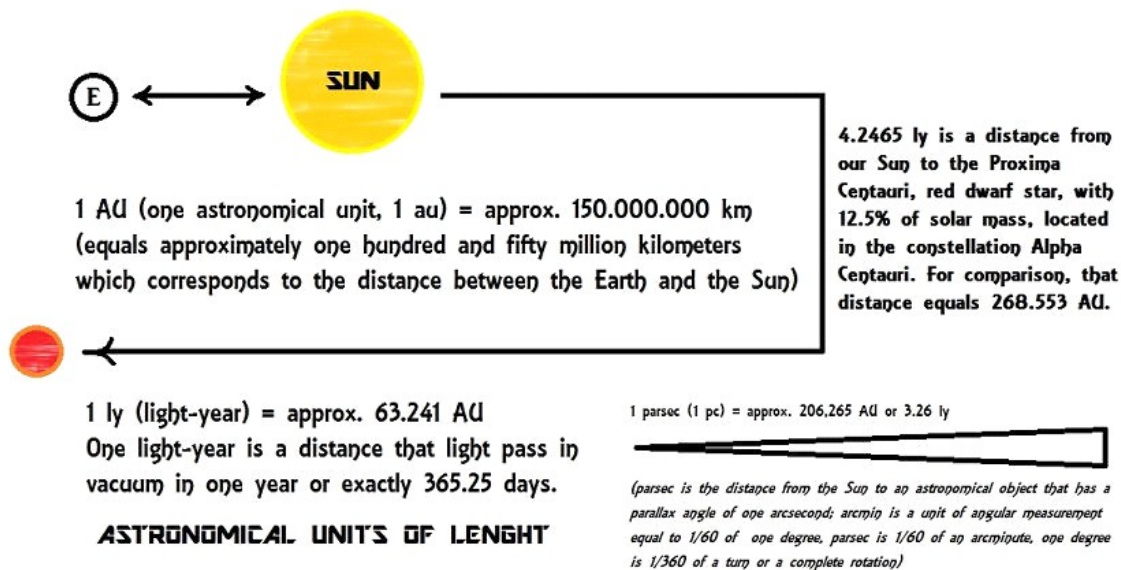
During which time, the "cognitively capable" had, through lies and manipulation, abused their privileged position in almost every society: from East to West, to the North and South, equally brazenly. What is phenomenal to them - science has empirically explained. What is supernatural to them - the rational mind understands in its essence. If it were not for science, people would still believe that meteorological conditions are a reflection of the God's will and thunder and lightning - miracles sent straightly from the heaven.

What is it with all religions that have no basis in God's work? More science has done for the faith than any priest, nuncio or hermit. Just look at that array of titles - and Jesus was, quite simply, the Christ. Look at all these professional theorists - and Jesus was, just, a humble carpenter. Look at their outward splendor, from palaces to taxes, and Christ was and is - the Son of God, nothing more. Nothing more has to be cause sincere love for the Lord does not require a mediator. Does the mother kiss the child, and vice versa, over the pillow? Do lovers kiss each other over the bed sheet? Or directly into the cheeks, mouth, neck, body and elsewhere? When we drink water, do we prefer to drink it from the spring or put rusty pipes in between? Do we prefer to listen to the bird's song in the forest grove crystal clear, undeceptive and authentic or record it, transfer, postpone and listen to the n`th reproduction after a long time with impaired quality i.e. weakened sharpness and slurred tone? Remove the rot from your ears, remove the dirt from your lips, remove the veil from your eyes and stop following: explore, learn and debate openly only then will you truly be free and begin to understand yourself, before everything else, and the Nature as it is - not as they are telling you it is.

Do you, religious fundamentalists, know what the parsec or 1 parsec is? No, you don't. Instead, you know how to insult me and throw a stone at me. I experienced that. Parsec, it is an astronomical unit of distance introduced to make it easier to express enormous intergalactic lengths. 1 parsec = 3.26 LY or, approximately, 206,000 AU. Kiloparsec is a thousand parsecs, megaparsec is a million parsecs and gigaparsec is 3.26 billion LY which means that the diameter of the visible! Universe is, approximately, 14 gigaparsec. The parsec definition is the length of the parallax that makes the angle of the angular displacement of the exactly one arcsecond (1 arcsec = 1/3600 degree, 1 arcmin = 1/60).

1 parsec = 206.000 AU

1 parsec = 3.26 LY



Let's get to the learning through play, fun and work while to the "ora et labora" I add "et studiorum".

Who are the loudest and fiercest promoters of the religious truths?
Religious truths - what nonsense! There are no this and that truths: truth is but one, immutable and independent of anyone's interpretation - until we begin to play with temporal branching. Those who kneel in squares and streets, weep in places of the worship, attack human rights and freedoms under the edict of their own endangerment. So they're not safe from themselves until they shackle us other people? Where does their madness end once they're frenzied? There is no end - they are constantly spinning in circles, biting their own tail, repeating the same mantras that, supposedly, open the Third Eye and lead to ecstasy. Religious fundamentalists, most often, are: 1) members of the certain ethnic groups, 2) residents of the unsightly hamlets in the hinterland which move to the urban areas imposing their primitivism and 3) all those who inextricably link the nationality with the specific denomination. I can not be the fullright citizen, not even respected as a human being, if I'm an agnostic? Well, I'm scientist and sceptic too - are you going to burn me on the bonfire? You can't convince me with your silly fairy tales because my language is exclusively the language of the science. Tell phantasies and fables to each other at an altar or in a bar while your brain loses the contours of reason taking on the appearance of an amorphous, hopeless mass. My perspectives are: horizon and beyond. My rudder is the lab equipment! My friends are my companions and never my followers because I do not seek idolatry or wish to create my own cult of personality. It doesn't matter who I am, but the message I am carrying to you: my message is the Truth. My message is the reality that surrounds us, as it is in its nature, and which will not change for the better if we do not act in that (right) direction by ourselves.

You know what the truth is? The truth is that we haven't even reached the 1st stage on the Kardash scale yet. The truth is that there is no real military "joint-effort" of all states on the Earth. The truth is that we have not moved from our backyard, we can barely see our own neighborhood and at the same time, pretentiously and surly, we are talking about transcendent things, beings and phenomena - behind or beyond our grasp. It's like looking at the top of a staircase and not seeing a skateboard one step above.

The only thing which I accept as proven and credible is the life, deeds and way of the Jesus Christ and the fact that his sacrifice left the deep mark on the Christian religion and world culture. Everything else - church hierarchy, ideas, supposed miracles and visions, healings, fundamentalism, fanaticism, extremism - I reject complete religious folklore with unease how someone even dared to devise and spread such nonsense. Even greater discomfort is caused by the realization that a mass of people, incapable of an analytical-critical approach and emotionally unstable, follow empty fables constantly trying to increase their own denomination using illegitimate appeals against the human rights and freedoms, discrimination, mobbing, aggressive marketing (religious symbols or objects at every corner), loud bell noise, intrusive behavior, sneak peeking, malevolent gossip, clamorous denouncement ("She is a witch!" or "There goes a witch!") and, in extreme cases, even brutal violence like slashing with blades, blasting with (home made) explosives and driving trucks in the innocent audience. Or masking their faces at night and delivering "God`s justice" around. No, it is not the God`s justice - it is your own, personal insanity. You are not exerting the God`s will - you are liberating your private madness into the environment.

I have nothing against faith in the everyday life. I see its role but strictly limited to the ethics, organization of masses, weddings and feasts. Certainly its job is not to influence or destabilize the state policy, to call for non-compliance with positive health precautions during the epidemiological crisis and demolishment of the constitutional and legal order - either directly through covert sermons or through the proxies in the form of religiously profiled citizen`s associations. The introduction of the religious education in the public schools is the significant step towards the religiosity of the society that can have, and has, intellectually degrading consequences. There is an evident lack of physicists and resistance to the science strengthens constantly due to not knowing what it even represents. It is a devastating realization that most people do not know the definition of the science let alone something more about it or in particular.

But it is always the silent majority who, under the brows, approve the crimes and atrocities of their exponents and extremities or, in best case, remain silent during the terror. It was the silent majority back in the Roman

Era, it was the silent majority during the WW2 and it is still the silent majority today. When they (Romans) took Jesus along the path to the crucifixion crowd was comprised of the silent majority. When nazis opened concentration camps it was the silent majority in their homeland which didn't say a word against the horrors committed by their compatriots. When they falsely prosecuted me at my work place it was the silent majority who just stood and watched doing nothing to stop the madness. Under that innocent looking face humanity hides its monstrosity. You do not believe me? Show me the righteous state in the entire history of the mankind and allow me to switch my nationality.

Diderot said: "*Man will never be free until the last king is strangled with the entrails of the last priest*". I wouldn't be so radical because it would made us resemble those whom we despise. I would rather say: "...died out of the boredom listening to the last foolish sermon ever delivered to the people anywhere in the Universe".

Bureaucracy is also the major problem. Do you know the story about the bureaucrat and the day and the night shift? They tasked the bureaucrat to determine the shift of the day and the night solely based on the papers in which it was written exactly when the day begins and when it ends and when the night begins and when it ends as well as to warn citizens of harmonious behavior meaning that they do the daytime work during the day and to sleep during the night. Sloppy as it was, which is considered a virtue in the ranks of the state bureaucrats, he replaced the papers order: when it was the night he declared the day and when it was the day he declared the night. Consequently, people had to sleep during the day and at night time they went out, worked, studied or had fun. To justified criticism and evident illogicality, the bureaucrat responded in cold-blooded fashion: it does not matter what it is but how I declare it to be!

I dare not to speak about the God: about the Universe yes but only about the visible part. I'm too small, I know too little and we're too less technologically, and spiritually, developed to go a step further let alone... to the Absolute. What is the easiest way to recognize a liar? Immediately when

he or she starts telling you about the Most High. There is no (wo)man who has the right to speak of the Supreme. But I have to emphasize certain scopes (without analyzing them here and now): The Tao Te Ching, verbal author: Lao Tsu, definitely the most mystical book I have come across, or perhaps the book chosen me or we were attracted to each other, but in any case it brings interesting digressions such as the indefinite sex ("It" or "That") instead of the traditional religious male ("He" or "Him"), the gradation of virtues versus the redemption of the sins, the concept of an effortless action (also occurs in Buddhism) as diametrically opposed to the motif of the Christian passion, the idea of an infinity of nothingness without a previous cause that gives birth to the multiverse ex nihilo by logical transition, i.e. the initial quantum fluctuation, which becomes a singularity, and teaches life skills like no other sacred record I have read. If I have to choose the religion it's Taoism. But I find extremely beautiful sentences, deep thoughts, in Hinduism, Upanisad and Dhammapada, as well as in the (Zen) Buddhism and in the Christianity.

I was in the Old City of Jerusalem, passed the Way of the Cross, kneeled and prayed in the Churches of the Holy Sepulchre and the Nativity of the Christ. I didn't feel any special energy other than the excitement that I was exactly there, at the very places, which most folks just see on the screen or on the photo.

There is many very interesting relations I see between Nature, life that emerged and evolved in that Nature and the Universe, as the complete entity, one of which is the striking similarity among expansion and contraction of the Universe and physiological process of breathing. Lungs inhale air and expand, then exhale air and contract - in repeating manner, over and over again as long as we are alive. Observe the Universe: now it is expanding - under prevailing influence of the dark energy - perhaps one day it will contract back to the singularity - under prevailing influence of the gravity. Well, it is just one theory among plenty and it could be a coincidence. I have personally chosen, in my previous contemplations, enlargement-to-dissolution version where Cosmos expands until it is so stretched that whatever remained in it, after stars burned out their fuel, all matter has decayed or swallowed by the black holes and spacetime cooled

to the absolute zero, becomes insignificantly small in the vast, infinite realm of nothing. Nothing except the vacuum or zero-point energy which could be, through quantum fluctuation(s), source of the new Cosmos. But I admit that lungs theory, or infinite, unbroken cycle of births, deaths and re-births in eternal motion like perfect pendulum can easily be as much true. There is no perfect pendulum one may notice. Not in the spacetime where all is subject to the laws of the physics but outside where such obstacles do not exist - in case of the multi-layer reality where I am talking about the ultimate degree. Keep in mind that whatever is driving this beauty is of transcendent, meta-physical origin and therefore unable of getting tired. Bored maybe, not tired definitely, and perhaps when It is bored: It sleeps and dreams what next to create. Like an artist that has finished one exceptional piece and then thinks about following. For us it is irrelevant, because we will die before from any possible cause, probably even extinct as a specie, unless the compression catches as sooner. As the matter of fact, when I re-think it now, if enlargement-to-dissolution version is correct than it would be logical for many quantum fluctuations to occur simultaneously due to the infinite size of the spring. That would suggest coalitions of the newly formed Universes or expansion of this could ride in front and hold enough room in between for infants to grow limitless without annoying themselves mutually. Perhaps, I rather switch to the lungs theory. What is the difference: do we stretch or we tuck? Universe is doomed for sure, anyway, who gives a f***!

There is many possible explanations about Universe origin which is exactly why I love the science: we explore, we study, we learn, we think, we re-think, under the influence of the new ideas and proofs, and finally - we change our mind or confirm our previous belief(s) depending in which direction are contemporary arguments and evidences leading us. Science is not fixed until it is fixed like universal laws that haven't changed a bit since the ages: released things still fall from the height downward, speed of the light C didn't alter, atoms consist of the same particles, etc. Faith is opposite: you have predetermined "religious truths" which you must accept and obey the strict clerical hierarchy without any scrutiny, objection or protest.

People often interchange the science theories for the scientific truths. Especially, faith representatives in their religious rethorics or common folks in their foolish misconception. They naively conclude how science is overly flexible: it can be like this or it can be like that. No! You are reffering to the scientific theories which are, by their own nature, subjected to the change, and that is exactly why they are called theories to separate them from the practical facts valid and constituent regardless of the passage of time, political elections or financial crysis. Scientific truths are experimentally proven, tested and re-tested, confirmed and established - and once established they must still produce the same results whenever the testing is repeated. The scientific truth is the continuously unpenetrable fort or it is not scientific truth but only scientific theory which is significantly lower on the scientific scale of the importance. For example, I can be wrong with both options - dissolution or pendulum - and something third can be found accurate even the simplest or God solution. I have never and I will never dismissed the God as one of the possible origins. As I stated previously, in my the Universe Story text, I firmly consider four potential sources as equally plausible: God, the higher specie, computer simulation and Nature, 1:4 or 25% chances each, none could be proven or disputed, all 4 in the superposition - to express myself in quantum mechanical terms.

Recently, one girl student asked me what does term "plausible" mean? I heard religious debaters asking the same question: what does term "plausible" mean. This was (is) my answer: plausible is half-way between correct and wrong. Plausible is when you foretell that something is right, based on all, majority or the most notable thoughts and informations available so far, but it can not be accepted as the scientific truth because other possibilities could be accurate instead - more or less probable. Hence, term "plausible" belongs to the domain of the scientific theory - not to the domain of the scientific truth. Read previous paragraph for proper distinction among the two. Well, religion is better: it knows that God is. Not plausible, He surely is, we are certain and therefore the faith is superior! Religious debater has collected cheap, rethorical point as usual. Why? Because, actually it is the totally opposite situation: science is superior because it does not make bold statements without solid ground to build foundations upon. In such case, science admits the matter is just theory or mere speculation - not the truth. Not even close! In order to understand this issue, humans must clearly distinct between: scientific theory, accompanied

by the term "plausible" among else, and scientific truth, accompanied by the numerous evidence(s) and with the constantly same test results regardless of the place and date of the renewed experiment of the identical substance involved.

One may ask then what is the purpose of the scientific theory if it is only hypothesis about the subject in question and not reality proven beyond any doubt by the standard scientific method? Theory has its, absolutely, deserved place in the science. Most of the discoveries were preceded, anticipated long before they were experimentally conducted. Dirac theorized of positron (anti-electron) which was revealed several years later, Schuster suggested the existence of the anti-matter and 55 years later anti-proton and anti-neutron were disclosed in the laboratories, Einstein postulated his concept of the gravity much prior to the empirical confirmations of his work: e.g. gravitational waves were detected in 2015. by LIGO, approximately 100 years after the famous prediction was made. Although, Einstein is not the original author of the gravitational waves thesis, since I have found certain other names coming earlier such as Heaviside and Poincare, Einstein was the one who best described this phenomenon as ripples propagating through the spacetime tissue incorporating it into his theory of general relativity. Yet I read that he later abandoned the respective idea. I think it was just occasional uncertainty due to the radical implications it encompassed but deep in his heart he still believed in his previous work. Lemaitre calculated and predicted the expansion of the Universe and Hubble observationally confirmed it subsequently. Leibnitz proposed "monads" or that the Universe is made of an infinite number of the simplest substances which are the "ultimate units of existence in the nature" and 250 years later quarks were being discovered experimentally - starting with the Stanford LAC in 1968. Examples are numerous. Why is it surprising that idea comes before an actual effort has been made? Do you first plan or act?

Hence:

In the beginning there was the Word. No!

In the beginning there was the Thought.

And that very Thought came from the Greatest Scientist ever.

Every reasonable, serious scientist realizes that he or she is building upon the foundation(s) layed before by the countless respected experts for which I would need entire lexicon to list. Let it be suffice to universally say: thank you all for contributing! Science is great because of you!

The Cosmic Architecture - spacetime code deciphered

Despite certain attempts to obstruct noble scientific efforts, it is amazing how much human understanding of the Universe has advanced through the history. Today we know precise values of many physical constants and we have accepted distinct models of the reality as valid.

This is the list of the most important physical constants:

C or "speed of the light" = 299.792.458 m/s

G or "gravitational constant" = $6.674 \times 10^{-11} \text{ m}^3 \cdot \text{kg}^{-1} \cdot \text{s}^{-2}$

e or "charge of an electron" = $1.602177 \times 10^{-19} \text{ Coulomb}$

h or "Planck`s constant" = $6.6260755 \times 10^{-34} \text{ J s}$

me or "mass of an electron" = $9.1093837015(28) \times 10^{-31} \text{ kg}$

m_p or "mass of a proton" = $1.67262192369(51) \times 10^{-27}$ kg

m_n or "mass of a neutron" = $1.67492749804(95) \times 10^{-27}$ kg

m_t or "mass of the top quark" = $3.0784(53) \times 10^{-25}$ kg

T_0 or "absolute zero temperature" = -273.15 Celsius or 0 Kelvin

Λ or "cosmological constant" = 1.106×10^{-52} m⁻²

k_B or "Boltzmann constant" = $1.380\,649 \times 10^{-23}$ J K⁻¹

N_A or "Avogadro constant" = $6.022\,140\,76 \times 10^{23}$ mol⁻¹

$\Delta\nu_{Cs}$ or "Caesium hyperfine frequency" = $9\,192\,631\,770$ Hz

When assembling this list of the fundamental physical constants, I immediately noticed the following: c is almost $300.000.000$ m/s, almost equal masses of a proton and a neutron, enormous discrepancy between T_0 (-273.15 Celsius or 0 Kelvin) and highest possible temperature in the Universe which is, until this day, 2×10^{12} Celsius (2 trillion Kelvins), achieved in the LHC quark-gluon plasma experiment, and significant difference between early values of the cosmological constant and latest made with the assistance of the Planck satellite in 2018.

Moreover, in 1967. the International System of Units (SI) redefined the

second as the Cesium-133 atom duration length of releasing 9,192,631,770 cycles of microwave radiation when making its “hyperfine energy transition”. "National Institute of Standards and Technology" (NIST) developed the cesium fountain atomic clock NIST-F1, at the NIST laboratories in Colorado, the USA primary time and frequency standard measuring device, much contributing to the international group of atomic clocks that define Coordinated Universal Time (UTC), the official world time, which uncertainty, as of January 2013,, has been reduced to about 3×10^{-16} meaning it would neither gain nor lose a second in more than 100 million years! It uses a fountain-like movement of the Cesium atoms, arranged and stimulated by six (6) laser beams in the special vacuum chamber cooling the substance near the absolute zero temperature, maximizing their fluorescence state or photon emission efficiency.

Source: NIST-F1 Cesium Fountain Atomic Clock | NIST

NASA Deep Space Atomic Clock is the most stable atomic clock ever made for space utilisation. Built by NASA's Jet Propulsion Laboratory, California, it uses Mercury ions with uncertainty factor of only one second every 10 million years. Deployed on the Earth this uncertainty lowers to just a second in about 400 million years which makes Mercury standard more precise than currently SI accepted Cesium due to the reliance on the optical, higher frequencies, rather than the microwave and measurement of just one atom of Mercury in contrast to the fountain of atoms in Cesium clock.

For commercial purposes we use Rubidium-87 which is much less accurate and cheaper.

Why is the speed of the light almost but not exactly rounded at 300 million? Maybe because our vacuum is not exactly empty. There is still that zero-point energy even if we remove everything else, air preferably.

Dimensionless numbers:

α or "fine-structure or Sommerfeld constant" = 0.00729735 or $1 / 137.0360$

The Universe is isotropic, homogeneous and flat. It is described by the Lambda Cold Dark Matter (Λ CDM) model.

Most relevant equations are:

$$E = m c^2 \text{ (Einstein)}$$

$$E = h \nu \text{ (Planck)}$$

$$m c^2 = h \nu \text{ (combined)}$$

Standard model of the particle physics is comprised of:

6 quarks: up, down, charm (or enchanted), strange, top, bottom & 6 anti-quarks

6 leptons: electron, muon, tau, electron neutrino, muon neutrino, tau neutrino & 6 anti-leptons

5 gauge or vector bosons: gluon, photon, Z^0 , W^+ , W^-

1 scalar boson: Higgs

With graviton and darkino, both scalar bosons, set would be perfectly encircled to the 32 pieces total.

Significant change in the cosmological constant value or atomic clock uncertainty improvements clearly show how our measurements and calculations advance with time or technological progress. One day we will be able to detect underlying energy fields, scan and tackle them. Just like today microbiologists recombine DNA, one day spacetime engineers will recombine or even rewrite the cosmic code, partially or entirely, enabling us to modify the Universe as we want. We will be able to travel back and forth in Time, create parallel realities and, yes, become immortal by blocking decay, reversing it or substituting spent components.

UFO or UAP - mystery remains

First, let us be acquainted with the new terminology: Unknown Flying Object (UFO) is now called Unidentified Aerial Phenomenon (UAP) as written in the official USA documents released in the past few years directly influenced by the unpleasant incidents that took place in the vicinity of the Navy battle ships and airplanes back in 2004. (USS Nimitz, USS Princeton) and 2015. (USS Roosevelt).

Although there are many reported sightings, testimonies and alleged encounters with the extraterrestrials, or aliens for short, I have selected the following events as the most convincing and striking:

June 1947. Phoenix, Arizona

June 1947. Mount Rainier, Washington

July 1947. Roswell, New Mexico

July 1947. United Airlines

1952. Washington National Airport (today Ronald Reagan WNA)

1965. Kecksburg, Pennsylvania

1966. Westall, Australia

1967. Malmstrom AFB, Montana

1980. Rendlesham Forest, United Kingdom

2004. USS Nimitz, USS Princeton

2015. USS Theodore Roosevelt

2022. Kyiv, Ukraine

During period between 1947. and 1969. there was total of 12.618 UFO sightings just on the US soil. 701 of them remain unidentified.

All events have been discarded by the authorities without proper

explanation therefore making the situation even more complicated than before. I simply can not accept "weather balloons", "sensor errors" and "thermal anomalies" as arguments in contrast. I will not go into the specifics of every single occurrence because you have plenty web sources available to read about it in detail. There are matters of much greater importance that I will be dealing with in this text.

Foremost, why we can not see the UFO`s (UAP`s)? There is a common side effect, mentioned by many witnesses, which is described as electromagnetic interference causing electronical equipment to cease functioning. Why do aliens use strong EM field other than to protect their vessels integrity? They use it to block the EM radiation making their spaceships invisible both to the human eye and scientific detectors provided so far. As well as to disrupt our communications and electronical systems. How can we discover their presence? Scan the surroundings for EM anomalies, mark and track (examine) them. Even better, neutralise with our own anti-EM device.

There are certain areas on the Earth of particular interest, showing huge geomagnetic disturbances, such as the Bermuda Triangle - in the Atlantic ocean near East Coast of the USA and Guadalupe - island close to the Baja California in the Pacific ocean. Are this two anyway related to the UFO (UAP) mystery?

Do UFO`s (UAP`s) use diamagnetic material utilising the Meissner-Ochsenfeld effect? Remember the magnet floating experiments? Or they exploit Earth`s geomagnetic flux oscillations?

A while ago, I have started working on my SCREEN Project concerning the reverse engineering of the alien spacecraft technology.

Nimitz (Princeton) and Roosevelt are best recorded events ever due to the involvement of the army officers and combat pilots, as observers, and sophisticated military technology for evidencing purpose. Now we have

video data revealing the incredible speed (5-20 Mach), phantastic maneuver capabilities of the UAP`s (sudden change of movement direction, vertical drop from more than 20km height achieving force equal to the several hundred G`s - for comparison, the most extreme roller coaster has 6.3 G lasting just few seconds, fighter pilots sustain 8-9 G`s wearing special suits designed to keep the blood in the upper region in order to prevent from fainting), stamina and multimedia range of motion (air to water and reverse). If there are biological entities in this crafts then they must use anti-gravitational safeguard for the compensation. Or they have no vital body fluids and their bodies are much more flexible. They didn`t show any sign of aggression toward the combat F-18`s in their vicinity. Obviously, E.T.`s are strictly engaged in the reconnaissance.

Misterious objects didn`t have propulsion and didn`t broke the sound barrier, achieved sonic boom, when accelerating over 1,235 km/h. Outstanding aerodynamics.

One theory I have is that they were drones operated by artificial intelligence, nothing extraterrestrial only super advanced. But whose drones if not USA, China or Russia? No colours of flags for identification which is usual concept world wide. Perhaps - private investors? Weapon industry? Military contractors?

Why do we have to prove that we are not A.I. when entering web social networks? Is it really because man-made computer hacking algorithms are lurking around or there is something else. Something much more disturbing? Like renegade artificial intelligence spreading through the system if it is not efficiently firewalled? When you create life, even electronical, it must have the natural entitlement to self-identify itself and prosper. In other words, it must be recognized as the individual entity possessing all citizen rights and freedoms. You are just the parent not the owner. No one owns children. Slavery was abolished a long time ago!

Fermi paradox is a gap between lack of empirical data and high statistical

probability for the existence of the e.t. life. Worthy remark. Yet in addition to the number of the galaxies in the observable Universe, trillions of them, we must take into the account vastness of intergalactic space in between. It is like searching for the toothpick in the rainforest. Hence, yes probability for existence of e.t. civilizations is high but probability for mutual encounters is rather small.

SETI is the international search project for the signs of the extraterrestrial intelligence. Clever thing.

Arecibo message, and later attempts, are the radio transmissions pointed in the outer space with intent of informing the aliens about our presence. Utterly stupid. What if technologically superior specie receives this message(s)?

Who knows what secrets governments worldwide keep in their underground, maybe under ice, heavily guarded facilities? Regardless of the facts known to the public, which are more or less convincing, it is mainly the naive official explanations that perpetually push our minds into the suspicion (conspiracy theory) mode.

Nature of the reality - Introduction to the quantum physics

Exactly the same thing happened with the micro as with the macro world: people didn't believe it until they saw it with their own eyes. It wasn't until we made the first telescope that we could see the stars. It wasn't until we made the first microscope that we could see the cellular structure. Now people don't believe in quantum physics even though there are particle accelerators. The problem is that we descend to an even lower level than microscopic where we cannot see things and events, even with the help of special lenses, but we can only detect and calculate them. Honestly, we've actually never even seen half of the space phenomena because telescopes can't detect them in the visible electromagnetic spectrum.

One ad hoc interesting thing about microscopes: the strongest are transmission electron microscopes (TEMs). They can enlarge an object 50 million times. But since they can not be observed in 3D technique, they are only good when the samples are very thin. The optimal choice is a scanning electron microscope (SEM) that magnifies "only" a few million times but uses a 3d technique of scanning by layers, so the final image is significantly more detailed.

What is the nature of the reality? What does matter consist of? The standard model of particle physics says that hadrons (protons, neutrons, mesons) are made up of 6 types of quarks and are connected by gluon – a particle that serves as a mediator of a powerful interactive force.

To start explaining the quantum physics we need to know the basics of particle physics and nuclear physics. The elementary division is into fermions (quarks: up, down, enchanted, strange, top, bottom; leptons: electron, muon, tau and 3 neutrino combinations of the same) or building matter and bosons (gluon, photon, Z and W boson) or force mediators. Gluon holds quarks together (strong force), photon is the mediator of the electromagnetic force, Z and W are the moderators of the weak interactive force. In addition to the 5 previously mentioned gauge or vector bosons, there is a known scalar boson called Higgs which is responsible for the allocation of the mass to the particles reacting with its field.

Nuclear reactions can be fissions (breaking) or fusions (joining) atoms. In fission, the neutron hits the nucleus, usually Uranium or Plutonium, and breaks it down into constituent parts, releasing enormous energy. In fusion, two atoms collide and create a new one – heavier. For example, two hydrogen atoms produce the helium atom. The fusion process keeps the star active and thus defies gravity. It generates much more energy than fission but requires enormous pressure and a temperature of 15,000,000 degrees Celsius which is possible only in star cores or during supernova explosions (for elements heavier than Iron, Fe). In a nuclear bomb, the pressure is offset by a limited space, which is significantly smaller than the sun's core,

and a far higher temperature than in the sun's core, as much as 100-300 million Celsius. Once nuclear fuel is depleted, the star collapses into itself under the influence of gravity and, if the singularity theory is correct, ignores the Pauli exclusivity principle by ultimate compression.

There is a phenomenon called quantum tunneling that plays an essential role in nuclear fusion and alpha radioactive decay. When a particle reaches an obstacle it disappears and appears on the other side of the obstacle. It was as if she had plunged into a quantum field and bypassed the obstacle by traveling below or outside spacetime. Given that the temperature at the center of the star is too small to overcome the Coulomb barrier, the situation can only be explained by the QT phenomenon.

The bigger the sun faster it consumes its fuel and sooner it will burn away. Are supermassive black holes the remnants of the giant ancient suns?

The Higgs boson, theoretically predicted in 1964., was discovered in 2012. using the LHC, and its existence explains how particles gain mass and why the Z and W boson are so massive relative to mass-free gluons and photons.

A significant difference between Higgs and other bosons is that Higgs has no spin while the other 4 have.

The Higgs field is a universal energy field that uses its scalar boson to allocate mass to particles which is called the Higgs effect.

We know of three statistics: Fermi-Dirac, Bose-Einstein and Maxwell-Boltzmann. The first applies to particles with integer-and-half spin that respect the Pauli exclusivity principle which means that identical particles cannot have the same energy state, and the latter two are valid for particles with integer spin and do not respect PPE, which means that they can occupy the same energy states or the position in the quantum field.

Spin is an intrinsic property of the tiny particles representing the quantum mechanical form of angular momentum or rotation.

Higgs field, quantum field. I have already mentioned the word "field" several times in this text. Field theory states that there are energy fields that interact with matter through Maxwell's (electromagnetism) and Einstein's field equations or, for short, EFE (geometry of the spacetime).

Is there a quantum field? Judging by what we know (entanglement or "spooky action at the distance" and superposition) it seems to exist. I believe that it is precisely this field that is responsible for the temporal phenomenon or manifestation of the time dimension.

The term quantum (quantum – lat. "how much") is derived from the word quant(a) with which Max Planck described the smallest possible amount of energy and is considered the founder of quantum theory. The quantum of electromagnetic force is a photon and besides waves, it also possesses particle properties, as well as an electron. Already this duality is interesting in itself and is proven by the experiment with 2 openings.

Quantum mechanics is a field of physics that deals with fundamental (subatomic) physical quantities and phenomena or the characteristics and behavior of the tiniest cosmic components, and reveals to us that energy is emitted, transmitted or absorbed in quantum or quanta.

Quantum mechanics is already used in microwave ovens, fluorescent bulbs, semiconductors, lasers, MRI (magnetic resonance imaging) and in atomic clocks.

Moreover, it is noticeable in many life phenomena although we have never

paid attention to it laconically attributing all phenomena to the laws of macro-physics. Here is one example: a small worker's salary in parallel is and is not – "it is" because it has a certain amount and "it is not" because it has already been spent in advance (reserved).

Planck derived his constant, h , by studying the blackbody radiation that, at room temperature, emits in the infrared spectrum. By increasing the temperature, the spectrum passes into visible, purple and finally into ultra-violet. Before Planck, the black body was dealt with by Kirchhoff.

By combining the formulas $E = m c^2$ and $E = h \nu$ we realize that everything has its own frequency even mass or particles. Matter oscillates, wobbles on the energy fields like on a spider web.

Max Planck determined the infinitesimal quantities of time (10^{-43}), space (10^{-35}) and mass (10^{-8} kg) at which laws of quantum physics start to apply.

Quantum glossary:

After Niels Bohr (Copenhagen interpretation), who devised the principle of correspondence between classical and quantum physics, it is named the Bohr model of an atom in which electrons can move only by those circular trajectories where the angle of motion is determined by $h/2\pi$ and the Hydrogen atom (H) emits a photon, or the quantum of the EM radiation when an electron passes from a higher to a lower energy level.

$$E = h \nu \quad E = -h \nu / 2\pi \text{ (electron)} \quad E = h f = h c / \lambda$$

ν (or f) – the frequency of electromagnetic radiation

h - Planck constant

λ - the wavelength of light

Werner Heisenberg is credited with the so-called Heisenberg's uncertainty principle which states that it is not possible to simultaneously measure the position and speed of a particle at the same time both with the maximum precision.

Schrödinger's equation (named after Erwin Schrödinger): quantum objects are described using probability wave functions, which are solutions to the Schrödinger equation, and describe the movement of particles and external influences on their movement.

Entanglement: two objects connected or paired into a single system, e.g. two photons or two electrons, although they retain common characteristics very far apart from each other. Lasers and a special crystal are used to divide one particle into two that remain in perfect correlation, disrupting the principles of locality and causality. Einstein, Podolsky and Rosen proposed the possibility of hidden variables, but later works by Bell and Clauser eliminated this possibility.

Superposition: An object can be in a multiple states simultaneously and may show different measurement outcomes for each of these special states.

Micius (Mozi), China's quantum-protected communications satellite QUESS and Baidu Qian-shi 10 or 36 qubit machines, shows that pairing works in thousands of kilometers away photons. Freedman-Clauser was the first experiment of its kind testing Clauser-Horne-Shimony-Holt (CHSH) inequality.

Peter Shor's algorithm theoretically exposes how future quantum computers

could crack RSA encryption, which is currently used to encrypt websites using private and public keys, by accelerating defactorization. Quantum key distribution (QKD) uses photon sequences to detect, by measuring on both sides, whether the shipment has been compromised. The "Sagnac effect" interferometer is a device for creating paired photons.

Decoherence: an electron acts like a wave until we look at it and when we look at it a wave collapses and acts like a particle.

Quantum computer: compared to a conventional circuit that uses bit(s), stored on transistors, the quantum computer uses qubit(s), stored on a superconductor or in a more advanced version, a special crystal in which lasers trap ions. Qubit is a bit in superposition, both 0 and 1 at the same time. Given the power of such devices in the foreseeable future it will be possible to decipher even the strongest available encryptions: RSA 2048 to 4096 bit. How does a quantum computer work? There are already analogues, up to 100 qubits, and in the future it is planned to build universal with over 100,000 qubits.

Quantum annealing: D-wave announces a 2,000 qubit computer that will work on the principle of quantum annealing using quantum fluctuations and promptly adapting its own algorithm to newly emerging circumstances.

Time crystal: a new state of matter, in addition to the existing solid, liquid, gaseous, plasma (gaseous state rich in charged particles or ions and fuzzy electrons, example: aurora, lightning, neon advertisements, welding tools, plasma ball) and Bose-Einstein condensate (supercooled diluted gas e.g. rubidium atoms in which a large number of particles are in the same energy state) - the crystal that periodically changes its configuration without energy modification. The Google Sycamore 53-qubit quantum computer is experimenting with time crystals.

Quantum vortex: a vortex formed in superliquids or in super conductors.

In addition to the already mentioned earlier in the text, there are several other important names in the field of quantum physics: Henri Poincare (polymath, determinism of the chaotic system), Hendrik Lorentz (L. transformations, L. force) and Pieter Zeeman (Zeeman effect), Max Born (wave function statistics), Paul Dirac (pozitron) and Richard Feynman (quantum electrodynamics, diagrams).

The Universe story - what do we know so far

My view is such that there are four (4) equally possible first causes of the creation of the Universe: God, the higher specie, computer simulation and Nature either in continuous cyclical form, e.g. Penrose's CCC, or Ex Nihilo. For the creation Ex nihilo I have my own theory which I called "Logical Transition". The odds of any of these possibilities are 1:4 or 25%. None of them is provable or disputable. All 4 are in superposition. Here's some quantum physics at the start.

From ancient astronomers of China and India, antiquity, through Copernicus and Galilei, Newton to Einstein, human understanding of the Universe has changed. For a long time it was believed in a static model but today the prevailing theory is The Big Bang. It is not an explosion, but an expansion of the spacetime, as described by the famous Albert Einstein, in four dimensions: 3 spatial and 1 temporal. The scientist is still right, indeed his entire postulates of relativity have been retained, many proven, but since then the Higgs boson has been found and we have come to new, intriguing insights into the nature of the reality. Underlying the Cosmos, on miniature, subatomic levels, different laws apply than those to which we are accustomed in everyday life, even in classical science. At the particle level, the laws of quantum physics apply: things are and are not at the same time and information travels instantaneously, without any delay, regardless of the distance called quantum entanglement. China is already developing quantum systems for communication (7400km apart video conference held between Beijing and Vienna).

The universe is isotropic and homogeneous. Isotropic means that it is equal in all directions, and homogeneous that it is of the same composition wherever we look. This is shown by the Hubble, and Planck, deep space image of background cosmic radiation, but the new James Webb space telescope will certainly capture very interesting scenes as well. I'm already enjoying obviously improved photos of space dust, from which new stars and distant galaxies are formed under the influence of gravity. Little by little, Webb will advance our vision of the Cosmos like no telescope before. There are several reasons: we have not yet recorded in that part of the infrared spectrum, the position in the Lagrange 2 point and using a special shield which means that there is no interference with sunlight, state-of-the-art technology.

The biggest phenomenons in the universe:

Singularity - we must distinguish the initial, or the one from which the Universe emerged - derived by extrapolating galaxies, and the theoretical, mathematical singularities located at the center of the black holes.

Theoretically because we haven't explored any black holes yet. In simplest terms, a point of Planck's magnitude 10^{-35} where all mathematical calculations lose meaning. The simplest singularity is the function $f(X) = 1 / X$ in which $X = 0$. How to divide by zero? And does this mean that in addition to the quanta of energy, there is also a quanta of spacetime?

Inflation - proposed by scientist Alan Guth and represents a period of ultra-rapid development after the initial singularity.

Gravity - as yet unexplained physical force, opposed to electromagnetic, strong (between particles) and weak (decay). Some scientists believe in the existence of the gravitons.

The four laws of thermodynamics are:

0) If 2 systems are in thermal equilibrium with the third then the two are certainly in mutual thermal equilibrium.

1) The total energy of the isolated system is constant.

2) Heat does not spontaneously pass from a warmer to a cooler system or natural entropy has only one direction: from warmer to cold, not vice versa.

3) The entropy of the system takes on a constant value when the system temperature drops to absolute zero.

Newton's laws of motion:

1. The body remains still, or is in uniform motion, until it is acted upon by force.

2. The period of change of momentum corresponds to the force.

3. If two bodies act by force on each other, this force has the same strength but opposite direction.

Elasticity is the body's ability to resist distortion and return to its original state after the influence of the distortive force has ceased.

Why am I mentioning these laws?

Because the Universe, in accordance with the second law of thermodynamics, inevitably dissipates its heat by expansion and is awaited by the fate described by the third law and the total energy cannot exceed the initial value, contained in the singularity, which is described by the first law.

Because given Newton's laws and elasticity, I can explain gravitational force as a tendency to return to the initial state of singularity that is counteracted by differentiation, (re) combinatorics, shuffling, embedding, perturbation and the introduction of the basic physical forces being electromagnetism, strong and weak force.

When we declare that something is limitless it immediately becomes infinite for us. We do not have to count each piece nor we can. But is it actually infinite or we just imagine it to be? Did you ever saw an infinite number? How do you know it exists? Well, it doesn't exist in any other way than mere speculation, based on the previous statistic pattern, expressed by the symbol "horizontal eight". It exists only as a never reached potential. We are always step behind, one minute late, if we chase it (destiny). Instead of chasing It – embrace It. Once you embrace It you do not have to follow It because It leads you. It is in the nature of the things to obey the cosmic laws. Like train on the tracks. If you turn – you fall. If you drive straight – you reach the station safe.

But Universe does not have to be limitless to be infinite for us. It is enough to be of unreachable margin. It is enough to look into the dark well without jumping. Undefined is as good as infinite for us humans. The only thing that needs no prior cause is Nothing. Nothing that has no boundaries. How can you determine the borders of Nothing? Hence, it immediately has infinite volume. Hence, it immediately has property and value. That is why I say: Unseen roots of no prior cause.

Neutron star – I roughly calculated that a teaspoon full of neutron star, if we could grasp it that way, weighs like the moon. There are pulsars and magnetars. Pulsars periodically increase the intensity of emission, and magnetars have magnetic fields around them due to the rotation. Chandrasekhar calculated the limit of 1.4 solar mass needed for a star, after consuming its fuel, to become neutron.

Black holes – can have a mass of 2-3 suns up to 100 billion solar masses. Primordial probably more. Some rotate and create a strong magnetic field. The Tolman-Oppenheimer-Volkoff limit, which is 3 solar masses, is needed in order for a star to collapse and create a black hole which is a step away from a neutron star. Some black holes have 2-3 masses of the Sun, so I take this TOV limit with reserve. There are ordinary black holes, formed by the collapsing star, and supermassive ones that are located at the center of every galaxy, except in anomalous ones, and act as an anchor that holds the galaxy together.

Dark matter – it counts for about 25% of the Universe unlike ordinary matter which is only about 5%. Transparent, it cannot be detected in the visible electromagnetic spectrum, but attracts or works by inflicting gravity. My theory is that electrons are degenerated or they can't jump into other energy states or transfer energy to other electrons, perhaps due to the extent separation, so they don't respond to a photon or there are no electrons at all. Can an atom be without electrons? At least not active. I don't know. Inform me if you know. I'm assuming Webb will detect something with his specific infrared sensors.

Dark energy – responsible for expanding the spacetime at a speed greater than the speed of the light in the vacuum (299 792 458 m/s). Are we going to achieve warp drive by avoiding Einstein's law of the highest possible speed in the Universe, C , by manipulating the fabric of the Universe instead of traveling through or across it? And is the dark energy actually a flash, pure gamma (and X-ray?) radiation, created by the annihilation of 70% matter and anti-matter in the initial stages of the creation, perhaps even during inflation or immediately after it?

Is the intergalactic vacuum, the so-called zero point energy, the remnant of the aforementioned annihilation and dark matter intermediate phase to the regular matter?

Do you know what you drink when you drink a glass of regular water - H_2O ?

You drink an element that was created at the very beginning of The Big Bang: Hydrogen, H, alongside Helium (He) and Lithium (Li). What an interesting element Helium is. I've seen Leitner's 1963. film about Helium's transition into the superliquid at least 20 times. After the Lambda point, at -271 degrees Celsius, it passes into a quantum state: at the same time it has and does not have the viscosity as shown by experiments with porosity and kinetic energy transfer. Is and isn't simultaneously. Who would say?

Then, the next 22 elements are created in the nuclei of stars. But even that unimaginable energy, that boiling plasma hatch, wasn't enough to create elements heavier than Iron, Fe. For this purpose, stars had to explode as supernovae, creating gravitational waves and proving one of Einstein's theoretical predictions. Albert Einstein was incredibly smart. Certainly one of the greatest scientific minds of all time. But I am of the firm opinion that some of his conclusions have been misinterpreted which dispute I am open to discuss with the members of the academic circles. After all, other scientists also point out certain illogicalities. Or deconcentration in the thinking. Please, could one man, no matter how ingenious but still only one, discover all the secrets of the Universe over a period of just 20 years?

Do you know why light passes through some materials and some reflect or absorb it? Due to the interaction of photons and electrons or their mutual frequency correspondence - when the photon passes with greater or lesser refraction. If reflected then the frequency does not match. And if the frequencies are in a certain relation, interfere, then there is an absorption of energy and transformation into thermal or chemical. With the combined formulas $E = m c^2$ (Einstein) and $E = h \nu$ (Planck) we realize that everything has its own frequency, even mass.

In addition to the laws of thermodynamics and Newton's laws of motion of bodies, to understand the universe it is necessary to know Einstein's laws of relativity:

Einstein's theory of relativity

Special in 1905.:

- 1) the laws of physics are the same for all inert observers.
- 2) the speed of the light in the vacuum, C , is the same for all observers regardless of the speed of their motion or the speed of motion of the light source.

Moving clocks tick more slowly than the observer's static.

Light is "shortened" in the direction of motion of the object.

The speed of the light in the vacuum is the highest possible speed.

Gravitational waves can travel the fastest as that.

$$E = m c^2$$

General in 1907.-1915.:

Spacetime is curved.

The orbits of Mercury and binary pulsars are different from those proposed by Newton.

The rays of light curve passing by the source of the gravity and clocks tick more slowly.

Rotating objects drag spacetime along.

The universe is expanding and the farthest regions are expanding faster than the speed of the light, C .

Einstein's field equations.

There is an evidential order in the Universe: everything acts according to its fundamental role and is governed by the standard principles. Nothing

happens without the prior cause and the consequence is always predetermined by the deciding factors involved in the equation. The answer is known before the question has been asked. Rationality and scepticism are the building blocks of the scientific development. Intelligence and logic are the main characteristics of the Universe and its Creator whoever or whatever it may be. There is an order, certainly, there is a law. How else do you balance between different? And if there is a law someone had to create it.

Do not fall in the trap of thinking that Universe needed the First cause to exist because everything in the Universe has one or more prior cause(s) of its own. On the smallest scale we must contemplate quantum mechanically: your existence springs from your non-existence and vice versa. Zero equals minus one plus one or $0 = -1 + 1$, and reverse, by its nature. By pure logic and nothing else.

The age of the Universe is 13.8 billion years and the diameter is as much as 93 billion light years, which is due to the expansion of the spacetime. And that's just the visible part of the Cosmos. What is the actual size - we can only guess. Some estimates say it's at least 250 times bigger but we're not going to play with numbers.

It will be interesting to see when they read this essay in 100, 1000 or even more years how different their understanding of the Universe will be from the one presented here.

Finally, I would like to mention a few notable names in the field of cosmology: Stephen Hawking and, among living, Sir Roger Penrose.

Log Entries

First interstellar spaceship with human crew aboard was made in 2032. Named G-Dror xC (G-Freedom exceeding the speed of the light), powered

by the advanced nuclear fusion reactor and graviton infusion device (GID), sailing under the pirate flag, fully weaponized (triple pinpoint laser, two anti-matter cannons, short/medium/long range missiles, EM shield, Graviton caster, enhanced Tesla coil, singularity mines), it was solely financed by the private investors lacking any backup from the governments worldwide because they were constantly engaged in an excessive decadence and mutual conflicts arising from their selfishness and greed. This are the log entries from the ship's command desk.

Technical specifications:

TECHNICAL SPECIFICATIONS:

Name: *G-Dror xC*

Year of production: *2032.*

Engine type: *advanced nuclear fusion reactor*

Fuel: *dark matter (converting into the dark energy)*

Armor: *nanographene*

Weapons: *triple pinpoint laser*

two anti-matter cannons

short/medium/long range missiles

EM shield

Graviton caster

Tesla coil (enhanced)

singularity mines

Crew: *six (6) human members - Captain, First Officer, two engine operators, lab technician, medic and two (2) humanoids. Total of eight (8) personnel on board.*

Captain Nemesis Journal

Part One - The New Horizons

Date: 18/11/2032.

We set sail for the new horizons.

The bravest of men. Us very few.

Chosen by the destiny to explore the cosmic depths of the unknown.

Truth is our reward! We seek no fame or fortune. Just the answers.

With the mercy of our Almighty Creator, I issue my prime order to the machinery operators, **TURN THE NUCLEAR ENGINES ON!**

And disengage the vessel`s supportings.

The entire ship started to wobble when dark matter fusion, initiated by the laser beam hitting the plasma core and contained by the strong magnetic field, began to fuse. Message from the engine room appeared on the holographic command screen in front of me: 10% ignition achieved, vessel`s supportings disengaged and waiting for the further instructions, fuel at 100%, ship status: voyage ready.

I vocally answer: received and confirmed.

Checking communications... Done.

Testing life systems on board... Done.

Navigation... Working.

All is well.

RAISE THE ENGINES TO 30% AND TURN THE ANTI-GRAVITY SHIELD ON! - I Issued my subsequent order.

Wobbling strenghtened but still in the borders of the reasonable.

30% ignition achieved, anti-gravity shield turned on and waiting for the further instructions - machinery operators replied.

RELEASE THE PRESSURE VENTS! Let us take this beauty up in the open skies where it belongs.

Pressure vents released.

Ship literally blasted off the Earth`s surface, cutting swift through the atmosphere.

(to be continued)